ABSTRACT

Recent progress in the development of polarized ^{3}He targets offers the possibility of performing many new electron scattering experiments using polarized electrons and the CEBAF Large Acceptance Spectrometer (CLAS). We propose to construct a polarized ^{3}He target for use with the CLAS and perform measurements of the magnetic and electric form factors of the neutron and small amplitudes in the ^{3}He ground state wave-function. These measurements will cover a broad range of momentum transfer ($0.5\ \mathrm{GeV/c^2} \leq Q^2 \leq 2\ \mathrm{GeV/c^2}$) where there is considerable uncertainty in the neutron form factors. The studies of the ground state wave function will allow careful tests of the nuclear structure information necessary for reliable extraction of the neutron form factors. In addition, information on the $\Delta(1232)$ electroproduction amplitudes and the possibility of Δ amplitudes in the ^{3}He ground state will be obtained simultaneously.